

CLAIMS:

1. A method for entering data in an electronic terminal having a four-way input device with a center position and  
5 a sensor associated with each of the four ways, the method comprising the steps of:

10 allocating a data value to each of the four possible input device movement sequences that comprise a movement of the input device from the center position in one of the four ways followed by a return of the input device to the center position;

15 allocating a data value to each of the eight possible input device movement sequences that comprise a movement of the input device from the center position in one of the four ways followed by a movement of the input device in another of the four ways without passing through the center  
20 position;

detecting the input device movement sequences with the sensors associated with the four ways; and

25 entering the data allocated to an input device movement sequence upon detection by the sensors of the input device movement sequence concerned.

2. A method according to claim 1, wherein the data values  
30 have a command, a character or a plurality of characters associated therewith.

3. A method according to claim 2, wherein ten of the possible twelve different data values have digits

associated therewith, preferably comprising all of the digits are 0 to 9.

3. A method according to claim 2, wherein a plurality,  
5 preferably eight, of the possible twelve different data values each have a plurality of preferably three or four letters of the alphabet associated therewith.

4. A method according to claim 3, wherein the letters of  
10 the alphabet are distributed over eight different data values as follows: abc, def, ghi, jkl, mno, pqrs, tuv, and wxyz.

5. A method according to claim 4, wherein the character  
15 "space" is assigned to one of the other data values.

6. A method according to any of claims 2 to 5, further comprising the step of processing the data values having a plurality of characters is associated with a predictive  
20 editor program for generating an output containing words matching a string of received data values having a plurality letters associated therewith.

7. A method according to any of claims 3 to 6, wherein a  
25 digit is associated with the data values having a plurality of preferably three or four letters of the alphabet associated therewith when the duration of the activation of the last switch in the input device movement sequence allocated with the data value concerned  
30 exceeds a threshold.

8. A method according to any of claims 1 to 5, wherein the input device further comprises a center sensor

associated with activation of the input device in the center position.

9. A method according to claim 8, wherein a data value  
5 entry having a plurality of characters associated therewith is disambiguated by the number of activations of the input device in the center position that follows the sequence of the input device movement to which the data value concerned is allocated.

10

10. A method according to any of claims 1 to 9, wherein the input device movement sequences and the characters or commands associated therewith are shown on the terminal as hard or soft labels proximate to the input device.

15

11. A method according to any of claims 1 to 10, wherein the four ways are arranged orthogonally, and the digits associated with the input device movement sequences are arranged in a clockwise sequence around the input device  
20 as shown in Figs 1 and 9.

12. A method according any of claims 1 to 11, wherein a tone is sounded for each sensor activation, preferably followed by a input confirmation when a data value is  
25 successfully entered, or followed by a rejection tone when the data value entry failed.

13. A method according any of claims 8 to 12, the entry of a data value is confirmed by an activation of the  
30 center sensor.

14. A method according to any of claims 1 to 13, wherein the input device is a four-way joystick.

15. A method according to any of claims 1 to 14, wherein the input device is a four-way pad.

16. A mobile communication terminal comprising:

5

a display;

a four-way input device with a middle position and a sensor associated with each of the four ways;

10

a processor unit monitoring the activation of the sensors and controlling the information shown on the display;

15

a data value being assigned to each of the four activation sequences that comprise the activation of one of the four sensors followed by a return to the middle position in which none of the four sensors is active; and

20

a data value or being assigned to each of the eight activation sequences that comprise the activation of one of the four sensors and whilst the sensor concerned is active followed by the activation of one of the other sensors;

25

the processor unit upon detection of an activation sequence having a data value allocated therewith accepting the data value concerned as entered.

30

17. A mobile communication terminal according to claim 16, wherein the terminal has a plurality of operation modes, comprising a mode for numerical entry, in which

digits are allocated to the data values, and/or a mode for text entry, in which a pluralities of letters of the alphabet are assigned to the data values, and/or a navigation mode in which navigational commands are  
5 allocated to the data values.

18. A mobile communication terminal according to claim 16 or 17, wherein the terminal comprises a menu structure and the processor allocates navigational commands to the  
10 data values when the menu is entered.

19. A mobile communication terminal according to claim 17 or 18, wherein the simultaneous activation of a first predetermined pair of outer sensors is associated with a  
15 clear or backspace function in the mode for numerical entry and the a mode for text entry.

20. A mobile communication terminal according to any of claims 17 to 19, wherein the simultaneous activation of a  
20 second predetermined pair of outer sensors is associated with a change in the characters or commands allocated to the data values.

21. A mobile communication terminal according to any of  
25 claims 16 to 20, further comprising a center sensor being associated with the middle position, the function of the center sensor being controlled and displayed by the processor unit in a dedicated area of the display.

30 22. A mobile communication terminal comprising:

a display;

a four four-way input device with a middle position and being movable in at least four preferably orthogonally arranged ways, a center sensor being associated with the middle position and an outer  
5 sensor being associated with each of the four ways,

a processor unit monitoring the activation of the center and outer sensors and controlling the information shown on the display;

10

data values being assigned to activation sequences that comprise one two or more activations of one of the four outer sensors;

15 the processor unit upon detection of an activation sequence having a data value allocated therewith accepting the data value concerned as entered;

the function of the center sensor being controlled  
20 and displayed by the processor unit in a dedicated area of the display.

23. A mobile communication terminal according to claim 22, wherein the terminal has a plurality of operation  
25 modes, comprising a mode for numerical entry, in which digits are allocated to the data values, and/or a mode for text entry, in which a pluralities of letters of the alphabet are assigned to the data values, and/or a navigation mode in which navigational commands are  
30 allocated to the data values.

24. A mobile communication terminal according to claim 22 or 23, wherein the terminal comprises a menu structure

and the processor allocates navigational commands to the data values when the menu is entered.

25. A mobile communication terminal according to claim  
5 23 or 24, wherein the simultaneous activation of a first predetermined pair of outer sensors is associated with a clear or backspace function in the mode for numerical entry and the a mode for text entry.

10 26. A mobile communication terminal according to any of claims 23 to 25, wherein the simultaneous activation of a second predetermined pair of outer sensors is associated with a change in the characters or commands allocated to the data values.

15

27. A method of entering characters in a terminal with a four-way or five-way input device, a display and a processor controlling the display and monitoring the activation of the input device, comprising the steps of:

20

defining a plurality of sequences of activation of the input device that involve at least two activations,

25

assigning groups of letters to the defined sequences of activation,

monitoring the activation of the input device,

entering a group of letters when the associated activation sequence is detected, and

30

sending the entered group of letters to an predictive editor application capable of outputting a word based on a string of received letter groups.

28. A mobile communication terminal comprising:

a display;

5 a four four-way input device with a middle position  
and being movable in at least four preferably  
orthogonally arranged ways, a center sensor being  
associated with the middle position and an outer  
sensor being associated with each of the four ways;

10 a processor unit monitoring the activation of the  
center and outer sensors and controlling the  
information shown on the display;

said terminal being capable of assuming a plurality  
of modes;

15 the functions associated with activations of the  
outer sensors, or sequences of activation of the  
outer sensor of said input device being controlled  
by the processor in dependence of the mode of the  
20 terminal and comprising navigation, the entry of  
numbers and the entry of text;

25 the function of the center sensor being controlled  
and displayed by the processor unit in dependence of  
the mode of the terminal and being shown in a  
dedicated area of the display.

29. A method for entering data in an electronic terminal  
having an array comprising four keys and a sensor  
30 associated with each of the four keys, the method  
comprising the steps of:

allocating a data value to each of the four possible  
key stroke sequences that comprise an activation of



a sensor followed by the deactivation of the sensor concerned whilst no other sensor becomes active;

5 allocating a data value to each of the eight possible key stroke sequences that comprise an activation of a first sensor followed by an activation of another sensor whilst the first sensor is active;

10 detecting the key stroke sequences with the sensors associated with the four keys; and

entering the data allocated to an input device movement sequence upon detection by the sensors of  
15 the key stroke sequence concerned.

30. A method for entering data in an electronic terminal having an array comprising five keys and a sensor associated with each of the five keys, one of the  
20 five keys being an enter key, the other four keys being input keys, the method comprising the steps of:

25 allocating a data value to each of the four possible key stroke sequences that comprise an activation of a sensor of an input key followed by the activation of the sensor of the enter key;

30 allocating a data value to each of the eight possible key stroke sequences that comprise an activation of a first sensor of an input key followed by an activation of another sensor of an input key and preferably followed by the activation of the sensor of the enter key;

detecting the key stroke sequences with the sensors  
associated with the five keys; and

5       entering the data allocated to an input device  
movement sequence upon detection by the sensors of  
the key stroke sequence concerned.

10

15